BANK CUSTOMER PREDICTION SYSTEM USING PYTHON WITH DJANGO AND MACHINE LEARNING

Sharine Lautrey, Paridhi Sharma, Mayur Niranjane, Vaishnavi Vade, Sneha Gaure,Dr.A.B. Jirapure

Department of Electronics and Telecommunication Engineering,

Priyadarshini College of Engineering, Hingna Road,Nagpur

Rashtrasant Tukdoji Maharaj University,Maharashtra,India

ABSTRACT

With the enhancement within the banking sector many people are applying for bank loans but the bank has its limited assets which is to grant to limited people only, so searching for to whom the loan will be granted could be able to be a safer option for the bank is a typical process. So, during this project we try and reduce this risk factor behind selecting the safe person so onalso to save plenty of bank efforts and assets. This can be done by mining the large data of the previous records of the people to whom the loan was granted before and on the premise of those records or experiences the machine has been trained using machine learning model which give the foremost accurate result. The competitive atmosphere within which electronic banking services are provided by different banks increases the requirement of customer retention methods being supported existing information technologies. Conclusion bank managers can identify prediction in future using the results of decision tree.

I INTRODUCTION

Customer prediction is one in all the foremost popular big data use cases in business or banking.Prediction may be a problem for banks because it is costlier to accumulate a brand-new customer than to stay your existing one from leaving.The customer churn is defined as movement of customer from one company toanother.Bank customer prediction rate measure the quantity of consumers who discontinued the particular bank services. Loyal customer cutting ties with a bank indicates dissatisfaction within the services providing impacts banks reputation and revenues. Customer relationship management (CRM) may be a comprehensive strategy for building managing and strengthening loyal and long-lasting customer relationship. Themainpurpose of this article is to predict whether it is safe or unsafe to allocate loans to specific peoplevisiting.

This project is based on mainly focusing on customers to whom bank can provide loans. It will be accumulating data of the customers such as personal details like name,contact information, family details, office details and salary details. On the basis of which bank will be able to analysewhom to give loan and whom not to. Other than this it will be focusing on the churns, which customer is loyal at present and in the future as well and which customer is not loyal.As soon as the bank will learn such things it can take immediate actions on it and contact such customers personally and introduce them some good offers and policies to make sure that customer stays and doesn't leave the bank services.

BENEFITS OF PREDICTION MODEL
Companies save money on marketing.
Repeat purchases from repeat customer means repeat profit.
Free word of mouth advertising.
Retained customer provide valuable feedback.

## II LITERATURE SURVEY

Paper [1]
Description
Customer churn is a phenomenon where the customers stopped using the company's product or service during a certain amount of time. The customer churn prediction is most challenging problems in the tele-communication industry. To lower the rate of customer churn, the company should be able to forecast the actions of customer correctly and establish connections between customer and keep factors guarded. There is no such model which gives the churning issues of telecommunication service providers accurately. A measurable and logical research plan of action are employed to build amachine learning model that addresses the class variance problem handled feature selection and capably predict the customer churn. The final accuracy of the model, Receiver Operating Characteristic curve and Area Under the Receiver Operating Characteristic Curve is used as the

evaluation metrics for this research to identify the best classifier.

Paper [2]
Description
With the improvement in the banking sector many people are applying for bank loans but the bank has its limited resources which it has to grant to limited people only, so finding out to whom the loan can be granted which will be a secure option for the bank is a usual process. So, in this project theytried to mitigate the danger behind selecting the safe person so as to save lots of bank efforts and assets. In this paper, anextensive review of different models to predict customer churn in e-commerce, data mining and machinelearning techniques has been presented. The main purpose of this project is to tell us that whether allocating the loan to a person will be safe or not.

III BLOCK DIAGRAM
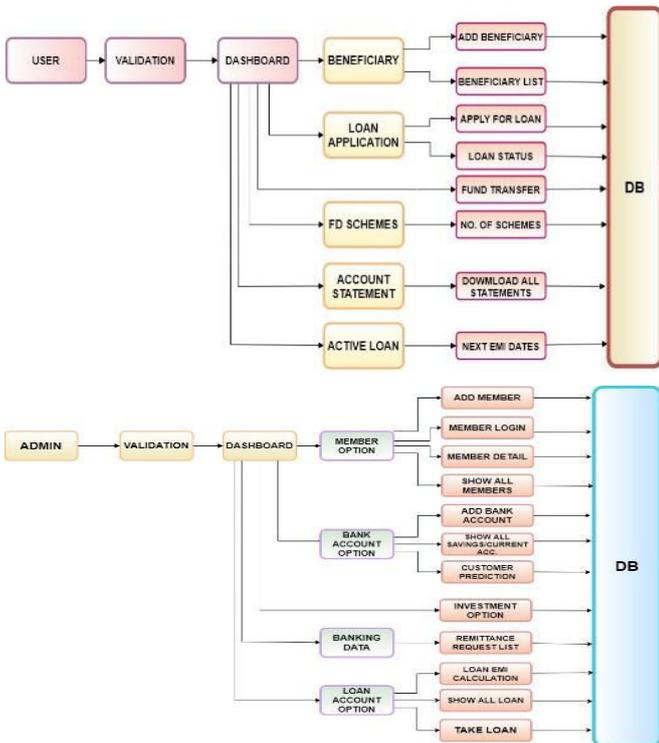
IV APPLICATION

1)Real time and predictive analysisbanks can predict the real time frauds which can happen and can use it for future outcomes.
2)Recommendation engines can enhance the customers to be engaged in taking facilities of a particular service by providing them attractive offers.
3) Customer support helps the customers to access all the detail information of the bank.
4) Managing customer datahelps in keeping the details of the customers in proper order.

5) With the help of customer segmentationbank isable to understand it's customers more deeply like what are the services they are expecting from them.
6) Social mediais able to promote the particular bank at higher platforms.

V WORKING

Data Preparation saves all the details of the customer and help to analyseand predict whether the customer will leave or stay.Study Existing Pattern provides an opportunity to discover and create the things which are beneficial for the bank.Training and Testing the Datamethod measures the accuracy of the system, it evaluates the data mining models andminimizes the effects of data discrepanciesfor understanding better the characteristics of the model. Finding Evaluating Parameters maps the formal and actual parameters when a subprogram is called. Importing the Libraries helps to get access of the codefrom another module. It also invokes and searches for the module initially in the local scope.Loading the Dataset process copies and loads the datafrom asource file,application to a database. It usually implements by copying digital data from a source and paste the data to a data storage.Selecting Relevant Features process selectsthose features automatically and manually whichcontributesbetter to the prediction output in which one is interested.The process of Converting Categorical Columns to Numeric Ones is also executed Pre-Processing the Data technique transforms raw data into an understandable format.Programming creates a set of instruction that tells the computer how to perform a particular task.The process of Analysingthe Data inspects, cleans,transforms,models the data with a goal to discover useful information, informs conclusion and supports decision making. It also understands the problems faced by the particular organization and explores the data in meaningful ways.It also checkswhether any missing data is there or not.It processesand cleans the data.Model is created and evaluated.

VI. TECHNOLOGY USED

PYTHON(3.7)
Python is an interpreted, high-level and general-purpose programming language.
It was created by Guido van Rossum and was firstly released in 1991.

WHY PYTHON?
>It is very easy simple to use.
>It is readable,understandable programming language
>It consists of fewer steps in coding as compared to other languages.
>It is dynamically typed.

>Also, highly extensible.
>It consists of user-friendly data types.
>Most of the things are readily available to use.

Django(3.2)

Django is a high-level Python web framework which enables fast development of safe and supportablewebsites.With a set of right functionalities,it lowers the amount of trivial code that ease the creation of web applications and results in faster development.It takes care of much of the hassle of web development.

Sqlite3

SQLite enables a single database connection to approach several database files simultaneously. This brings unique features like joining tables in different databases or copying data between databases in a single command. SQLite is so capable that itcreates in-memory databases that are very fast to work with. By default, Python installation contains a Python SQL library named sqlite3 so that one can use to interact with an SQLite database.

HTML/CSS

HTML (Hypertext Markup Language) and CSS (Cascading Style Sheets) these are two technologies which are used for building Web pages. HTML gives the structure of the page, CSS is the language for describing the presentation of Web pages, including colours, layout, and fonts

JAVASCRIPT

JavaScript is a programming language frequently used in web development. It is a text-based programming language used both on the client-side and server-side that permits you to make web pages mutual.

VIIREQUIREMENTS

HARDWARE REQUIREMENTS	
Processor Pentium(r)	1.70 GHz
Ram	Min 1 GB
Hard Disk	Min 128 GB
SOFTWARE REQUIREMENTS	
Operating System	Windows XP and upper version/Linux/MAC Os
Browser	Chrome/Mozilla/Opera
IDE (Integrated Development Environment)	Visual Environment 1.55.2, PyCharm 2021.1.1
Database	SQL lite3 viewer

VIII FUTURE SCOPE

As computers gets smarter day by day, banks can use consumer databases and historical transactions with the goal of predicting the future. This systemwill help inminimizing costs and even improve one's experience with the bank.The term data privacy will facilitate the assured and protectedexchange of customer data with many third-party ecosystems.It will also provide a better mobile experience to the customers by keeping them regularly updated. One will be able to do all their payments and transactions online no matter whatever will be their location. Regulatory compliance will become more relevant. Business models will change.

IX RESULT

It can undertake the problem identification, formulation and solution.Also,it will be able to design engineering solutions to complex problem utilising a systems approach. Front end and back-end development done successfully using HTML. Framework development done successfully using Django. The team members can also present the project outlining the approach and expected results using good oral presentation skills. Theyare able to work with team and communicate with peers.They are able to develop skills required by the industry.

X CONCLUSION

A system called Bank Customer Prediction System that serves the organization in building right conclusion to sanction or dismiss the loan seek of the customers. This will absolutely help the banking industry to open up effective delivery channels. The data of the customerswill definitely be safe. All the payment and transaction history will be noted successfully. Both the panels i.e., admin and user are developed and working successfully. All the requirements of the bank organizationhave been fulfilled with the help of this system.

XI ACKNOWLEDGEMENT

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Abbas Keramati1*, Hajar Ghaneei2 and SeyedMohammad
Mirmohammadi3*Correspondence:keramati@ut.ac.ir
1Department of IndustrialEngineering, Faculty of Engineering,University of Tehran, North Kargar,Tehran, Iran

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